Operate the M1114
10 June 2002

SECTION I. ADMINISTRATIVE DATA

All Courses Including This Lesson

Course Number	Course Title
	M-1114 New Equipment Training

Task(s) Taught(*) or Supported

Task Number	Task Title
Individual	
551-721-1352	Perform Vehicle Preventive Maintenance Checks and Services (PMCS)
551-721-1366	Drive Vehicle with Automatic Transmission

Reinforced Task(s)

Task Number	Task Title

Academic Hours

The academic hours required to teach this lesson are as follows:

	Resident Hours/Methods	
	10.5 hs	Demonstration/ Conference / Discussion/ Practical Exercise
Test	1.0 hrs	
Test Review	.5 hrs	
Total Hours:	11.5 Hrs	

Test Lesson Number

	Hours	Lesson No.
Testing (to include test review)	_____	_____

Prerequisite Lesson(s)

Lesson Number	Lesson Title
None	

Clearance Access

Security Level: Unclassified

Requirements: There are no clearance or access requirements for the lesson.

Foreign Disclosure Restrictions

References

Number	Title	Date	Additional Information
TM 9-2320-387-10	Operators Manual, M-1114		
STP 19-95B1-SM	Soldiers Manual MOS 95B Military Police	21 Feb 97	551-721-1352 551-721-1366

Student Study Assignments

Student handouts provided before class

Instructor

One instructor.

Requirements

The instructor must be licensed on and experienced with the M1114.

Additional Support Personnel Requirements

Name	Quantity	Man Hours
Assistant Instructor (AI)	1	11.5

Must be licensed on and experienced with the M1114.

Equipment Required for Instruction

Name	Quantity	Expendable
M1114 Up Armored HMMWV/ w all BII	2	No
Traffic Cones	6	No

Materials Required

Classroom, Training Area, and Range Requirements

Instructor Materials:
STP 19-95B1-SM, Soldier's Manual MOS 95B Military Police, Skill Level 1, Feb 97
TM 9-2320-387-10 Operators Manual M1114
Hard Surface area for driving

Student Materials:
Student guide

Ammunition Requirements

	Student Qty	Misc Qty
None		

Instructional Guidance

Before presenting this lesson, instructors must thoroughly prepare by studying this lesson and identified reference material

NOTE:

This block of instruction is intended for personnel that possess a valid license for the HMMWV, and is geared towards unit instructors / master driver trainers. It is designed to familiarize personnel with the M1114 and is not intended to be a course to license operators

Proponent Lesson Plan Approvals

Name	Rank	Position

SECTION II. INTRODUCTION

Method of Instruction: Conference / Discussion
Instructor to Student Ratio is: 1:12
Time of Instruction: 5 mins
Media: Large Group Instruction

Motivator

You have been introduced to the M1114 Up Armored HMMWV in a previous block of instruction, which identified the differences between it and the M1025/1026 series HMMWVs. Now we are going to go over those things that you as the operator need to know or do in order to safely operate this vehicle.

Terminal Learning Objective

NOTE: Inform the students of the following Terminal Learning Objective requirements.

At the completion of this lesson, you [the student] will:

Action:	PMCS and Operate the M1114 Up Armored HMMWV
Conditions:	Given this block of instruction an M1114, TM 9-2320-387-10, and a suitable Training Area
Standards:	Conduct PMCS and Safely Operate the M1114

Safety Requirements

At no time will students operate the M1114 without an instructor present.

Risk Assessment Level

Low

Environmental Considerations

NOTE: It is the responsibility of all soldiers and DA civilians to protect the environment from damage.

None

Evaluation

NOTE: Before presenting this lesson, instructors must thoroughly prepare by studying this lesson and identified reference material.

Material covered in this lesson will be evaluated by a written examination

Instructional Lead-In

Everyone here should have, at some time, conducted PMCS and operated a vehicle. What we are going to cover now are those items specific to this vehicle that if not learned and done properly may either damage equipment or injure personnel.

SECTION III. PRESENTATION

1.) Learning Step / Activity 1. Conduct PMCS on the M1114 UAHMMWV

Method of Instruction: Conference / Discussion
Instructor to Student Ratio: 1:12
Time of Instruction: 50 Min
Media: Large Group Instruction

NOTE: This block will be given using an M1114. As the Primary Instructor explains each item and procedures the Assistant Instructor will point out the item being described and perform the PMCS check.

A. All of you have been trained in how to use a Technical Manual (TM) and how to conduct PMCS, and all of you have conducted PMCS on the M1025/1026 series HMMWVs. What we are going to do in this block of instruction is identify the items that are unique on the M1114 that you the operator have to check when conducting PMCS, and explain how to check these items. Remember we are not here to learn how to conduct PMCS, you have already been taught that. What we are concentrating on here are the unique requirements for the M1114 Up-Armor HMMWV, and items that you are not familiar with that may or may not be covered in the TM.
B. You may be asking your self, if I know how to conduct PMCS, and if I know how to use a TM, then why can't I just use the TM for the M1114, find the PMCS table and use it, why a special block of instruction? Simple, the M1114 is so new that it is changing constantly, things are being added or modified on the vehicle, and all the changes are not necessarily captured in the TM provided with the model you received. Eventually, all the modifications will be included in the TM and this block will not be required, however until then, we can't let you have the vehicle without letting you know in some forum what needs to be checked, what to look for, and how to correct deficiencies.
C. The TM for the M1114 is TM 9-2320-387-10, which covers both the M1113 and M1114. You will still use the PMCS table (table 2-2, pages 2-27 – 2-59 to conduct all of the PMCS checks and services from Before Operations PMCS through Monthly PMCS. The following additional checks will also be conducted during the Before, weekly and monthly PMCS checks:

NOTE: Ensure that students are capable of seeing items as they are pointed out.

1. **Ballistic Armor**: During the exterior checks of the vehicle, it is indicated that the driver will check for leakage, and obvious damage that would impair operation. The driver will also check for any damages to the exterior armor and annotate any scratches or dents in the armor. The armor provides increased ballistic protection and damage to the armor could have an adverse effect on the armors ability to perform as intended.
2. **Windows:** Check all window exteriors for damage, cracks, chips, discoloration, or anything that would impede vision. (Clean IAW TM 9-2320-387-10, Table 2-5 page 2-26) annotate all discrepancies and corrective actions if any taken. Check window interior sides for any damage, scratches, discoloration, or anything that would impede vision. (Clean IAW TM 9-2320-387-10 table 2-5 page 2-26, Ballistic Glass). Failure to follow instructions on cleaning ballistic glass will result in permanent damage to the interior of the window. Annotate any deficiencies and corrective action if any taken. It is very important to remember that the interior of the glass is coated with a spall lining that prevents glass fragments from entering the crew compartment in the event of damage to the windows. Any damage to the spall liner can result in degradation of ballistic protection and could result in serious injury to occupants in the event of an object impacting on the window.
3. **Fuel Door**: During exterior checks the operator needs to inspect the fuel door for damage and operation. Ensure the fuel door closes and locks securely.
4. **Seat Belts**: Seat belt inspection states the operator will inspect the belts for security damage and operation of buckle and clasp ends. Operators will specifically check to ensure that seat belts are not frayed, cut or torn, anchor points are secure, and that seat belt can be adjusted.
5. **Weapons station**: Operator will also check operation of weapons hatch to ensure hatch opens and closes without binding. Operator will ensure latches operate properly, ensure that

rods are present, can be secured in the stowed position and are functioning properly not bent or damaged, slip pins are present and not damaged and rods can be secured in the catch blocks.

6. **C-Pillar Door**: Operator will check the function of the C-pillar door. Ensure that safety latch catches in all positions, door moves freely without binding, and there are no dents, scratches or damage to the door.
7. Doors: Operators will check each door and ensure that doors shut properly door locks engage and disengage properly. Operator will also ensure that door windows move freely without binding and windows lock in all positions.
8. **VIC III**: Operator will conduct PMCS checks on the VIC III system IAW TM 11-5830-263-10 Operators Manual for Vehicular Intercommunication Set AN/VIC-3 (V). Operator will inspect, headsets for damage and functionality, and connection cables for cracks, dirt and functionality.
9. **Air Intake Extension**: Operator will check the air intake extension for damage, and security. Check the rubber boot to ensure it is in place and not cracked or cut and clamps are present and tight. Under the wheel well there is a rubber flap that is used to clean dust from the intake system. The operator needs to check this flap to ensure that it is intact, and closed. If this is damaged or blocked open, water can be sucked into the engine through this vent when operating in deep water.
10. **Winch**: Operator will check to ensure that the hook is securely attached to the cable and free spool out 2 feet of line and then re-spool in order to ensure winch is operational.
11. **Transfer case:** Operator will check to ensure that the T Case warning light illuminates when the HL or L position is selected and goes out when the T case is shifted back into H.
12. **Cargo**: Operator will ensure that all cargo carried in or on the vehicle is secured and will not shift or come loose. Operator will also ensure that all items being carried in the crew compartment are secured in their proper storage locations, and any items not having a designated storage location is either physically secured with a securing device such as tie down or cargo net, or is moved to the rear storage area of the vehicle and properly secured.
13. **Unauthorized items**: Team Leader or Senior Occupant will conduct a final inspection of the vehicle to ensure items attached or mounted on the M1114 are authorized by the vehicle manufacturer and that any modifications conducted without proper authorization from the Material Developer are annotated and reported. Team Leader or Senior occupant will also ensure that vehicles are not over loaded exceeding the authorized weight carrying capacity of the vehicle. Spare Tires will not be attached to the exterior of the rear storage compartment door. This can cause damage to the door, and could result in serious injury to an individual seated in the weapons station, or personnel following behind in the event it came loose during travel.

D. The items we have gone over in this block of instruction are items that will not be found in your current TM. Remember these items are in addition to those checks as outlined in TM 9-2320-387-10. All of the items listed in the PMCS chart in the TM must also be checked.

2. Learning Step / Activity 2. Hasty evacuation of the M1114 UAHMMWV

Method of Instruction: Conference / Discussion
Instructor to Student Ratio: 1:12
Time of Instruction: 30 min
Media: Large Group Instruction

A. At any time when operating or riding in a vehicle something may occur that would require a quick evacuation of the vehicle such as a fire. In a privately owned vehicle this is a fairly simple procedure, get out as fast as possible, however, in a military vehicle loaded with personnel and all of their equipment, certain things must be done, and soldiers must know what they are supposed to do before a situation arises. The best way to ensure that everyone gets out of the vehicle, with everything they are supposed to have is develop a drill. This block of instruction does just that.

B. This block of instruction will teach you the basic requirements for conducting a Hasty Evacuation of the M1114. Unit SOPs will modify this procedure by identifying differing pieces of equipment that must be secured, or by adding or moving responsibilities for certain actions to different team members.

C. The first thing that needs to be identified is the triggering mechanism, a word, phrase or action that automatically lets the other crew members know that they must evacuate the vehicle, and causes them to respond immediately without thought. For this lesson we will use the command “Bail Out”:

1. The Team Leader alerts the crew by announcing “Bail Out” over the intercom system. If the intercom system is not functional, the team leader ensures that all crewmembers received the command.
    - **i.** Gunner: Will perform the following steps in order, unless required to provide suppressive fire on a hostile element, until the team leader can exit the vehicle and provide suppressive fire. Immediately on Gunner hearing command “Bail Out” Gunner places weapon mounted in weapons station on safe. Upon hearing driver announce “ Vehicle Secure” removes ammunition and dismounts the MK 19, IAW Military Police Drills, ARTEP 19-100-10 Drill, Crew Drill 19-5-D0006 if possible.
    - **ii.** Once, MK-19 is removed, disconnects CVC headset at the quick release connector
    - **iii.** Secures individual weapon, and other items identified by unit SOP and evacuates the vehicle by going through the gunners turret, if possible. If not possible exits the vehicle through a side door opposite hostile element, threat or danger.
2. Driver:
    i. Immediately upon hearing the command “Bail Out” Stops the vehicle
    ii. Places transmission in Park, and sets emergency break
    iii. Shuts down the vehicle, and announces “ Vehicle Secure”
    iv. Disconnects the CVC headset at the quick release connector
    v. Secures individual weapon and evacuates the vehicle through the drivers side door if possible. If not possible exits through closest door opposite hostile element, threat or danger.
    vi. Assists Gunner in removal of MK 19 mounted in weapons station and ammunition. IAW Military Police Drills, ARTEP 19-100-10 Drill, Crew Drill 19-5-D0006.

3. Team Leader:
    i. Announces “Bail Out”
    ii. Notifies Squad, platoon, or higher command element of evacuation of vehicle, reason, and location.
    iii. Disconnects CVC headset at the quick release connector, and secures individual weapon, and other items identified by unit SOP.
    iv. Upon hearing “Vehicle Secure” exits vehicle through Team Leaders side door if possible. If not possible exits through closest available door opposite hostile element, threat or danger.
    v. Identifies a safe location far enough away from the vehicle for MK 19 IAW Military Police Drills, ARTEP 19-100-10 Drill, Crew Drill 19-5-D0006.
    vi. Provides security for remaining team members.

D. The team leader must make an immediate assessment of the situation and determine that by remaining in the vehicle it would result in the loss of life or capture of the personnel. The team leader must also quickly assess whether there will be sufficient time for the gunner to dismount the MK 19 from the weapons station and still have sufficient time to evacuate himself. Whether or not, they are going to remain in close proximity to the vehicle and if the gunner and driver can dismount the MK 19 without suffering loss of life, injury or capture and whether they will have to move away from the area on foot. What actions to take in the event of these circumstances will be covered at a later time.

3.) Learning Step / Activity 3. Gain entry into the M1114

Method of Instruction: Conference / Discussion

Instructor to Student Ratio: 1:12
Time of Instruction: 30 min
Media: Large Group Instruction

A. With the introduction of the M1114, also comes something new in the form of door locks. The older vehicles that most of our soldiers are used to had no locking devices on any of the doors. The M1114 is equipped with locking mechanisms on every door or opening on the vehicle in order to protect the crew from unauthorized entry, and to prevent doors from coming open in the event of a mine strike. This means that the M1114 can be secured to a point where, if the crew were incapacitated personnel would have to find an alternative entry point or force entry.

> **Note**: When securing the M1114 soldiers need to be cautious. It is possible to lock yourself out of the vehicle. The windows on the doors can be closed from the outside and will automatically lock in the up position. Before closing a window from the outside, personnel should physically check to ensure that one of the doors is not locked prior to pushing the window up. The door locks can be engaged from outside of the vehicle by reaching through the window. If this is done the window is closed and all openings are secured, the only way to gain access is by force, which may cause damage to the vehicle.

B. The first thing that must be done is, determine how you will gain access to the vehicle. If the doors are locked, like they should be, then you will have to find another way in. Check the gunner's station. If the gunner's hatch is open you can enter through the hatch and unlock one of the doors to gain better access to personnel inside the vehicle. If the gunner's hatch is secured, open the cargo hatch and check the C-Pillar door, if it is either fully or partially open, you can gain access into the interior of the vehicle through the opening and unlock one of the doors. It may be possible for an individual with a small arm to reach through the gap between the top of the rear wall and roof of the vehicle and reach the latch mechanism on the C-pillar door. If the C-pillar hatch is closed and secured and can not be opened by reaching through the gap, then entrance must be forced. In order to force entry into the M1114 you must do the following:

1. On any door locate the three bolts near the top of the door, and the bottom of the door, away from the hinged side. They are the only bolts on the handled side of the door.
2. Using an adjustable wrench or any tool available. Remove all six bolts.
3. Once the bolts are removed, strike the door using a hammer or large object, in the center of the triangle formed by the bolt-holes.
4. This should cause the door locks to fall away from the door, and the door should open by using the handle.
5. If the door locks do not fall away place one of the bolts back into the hole and screw it back in approximately four turns, and strike the head of the bolt with a hammer or large object, this should break the door locks free, and the door can be opened using the handle.
6. If the door resists when attempting to pull it open, this is because locks are still attached to the door at the center lock activation point, and have dropped below the frame of the door. Pulling harder on the door or using a large object such as a pry bar, should provide sufficient force to open the door.
7. Remember that this procedure may damage the vehicle and or locking mechanism and should only be used under emergency conditions, or by direction of the commander.

4. Learning Step / Activity 4. React to a Rollover

Method of Instruction: Conference / Discussion
Instructor to Student Ratio: 1:12
Time of Instruction: 45 min
Media: Large Group Instruction

A. One of the biggest fears anyone has in any type of vehicle is that an accident will occur and the vehicle will roll over.

B. Soldiers are seriously injured or killed far to often in vehicle roll over incidents because they either did not have roll over procedures or failed to practice them.
C. The key to success in a roll over is always being prepared, and that can only be done when teams are trained. Each team member should immediately perform certain actions when they hear someone yell “Rollover”. In the M1114 the actions of each individual are:

1. Driver:
    i. Immediately upon suspecting that the vehicle may roll yells “Rollover” and simultaneously takes foot off of accelerator
    ii. Shuts off engine if time permits and braces against steering wheel without locking elbows
    iii. Tucks chin down into chest.
    iv. Waits for vehicle to come to rest
2. Gunner: (Never attempts to jump free of the vehicle)
    i. Immediately upon suspecting that the vehicle may roll over, Yells “Rollover” while at the same time drops down inside the vehicle.
    ii. If time permits, close and latch the Weapons station hatch and get into closest seat and secure seat belt
    iii. If time does not permit or vehicle has already started to roll, once inside of the vehicle grabs any fixed object inside the vehicle, gunner should attempt to drop into one of the rear passenger seats, and at a minimum grab the seat belt, brace feet against seat support of the seat in front of him, push backwards into the seat, and tuck chin into chest.
    iv. Wait for vehicle to come to rest
3. Team Leader:
    i. Yells “Rollover”
    ii. Attempts to grab gunners and pull them into vehicle
    iii. Brace feet against floorboard and push back into seat.
    iv. Cross arms over chest
    v. Tuck chin into chest
    vi. Wait for vehicle to come to rest.

D. Once the vehicle has come to rest, there are additional actions that must be taken and they are:

1. Team Leader/ Driver/ Gunner: The following tasks must be performed as quickly as possible. The condition of each individual, danger of further injury, and threat of attack, and/or injury from a hostile element or fire from the accident, may dictate who does what. Any individual who has not been injured or who is capable can initiate the checks on the others and perform the required actions. If all team members are conscious and capable, the team leader should task individuals to perform certain functions in order to recover the crew, sensitive items and assess the situation as rapidly as possible.

    i. Check crewmembers by calling out “ Driver status” “Gunner Status”, “Team Leader Status” visually check each individual.
    ii. If a positive response is received from each individual, immediately attempt to notify higher headquarters of situation.
    iii. Disconnect CVC headset
    iv. Secure individual weapon, and fire extinguisher
    v. Exit vehicle, closest door if possible, if not exit through closest available exit.
    vi. Check vehicle for fuel spills, and fire, attempt to contain spills and extinguish fire, assess threat situation.
    vii. Aid other crewmembers in exit from vehicle if necessary. In the event a crewmember is unconscious and extent of injuries are not known, do not move the individual, unless there is a threat of further injury or loss of life. Moving an individual with unknown injuries could cause further aggravation to the injuries sustained and could result in death. Only move an injured individual as a last

resort. If an individual is pinned under the vehicle, do not attempt to move the vehicle off of the victim. Make the individual as comfortable as possible, treat for shock and get medical personnel as quickly as possible. Moving the vehicle could result in instant shock, and or death from the rush of blood back into the extremities, or could cause further injuries. Only Emergency Rescue and medical personnel are trained and equipped to handle this, if the situation permits wait.

viii. Check personnel again for injuries, and account for sensitive items, and serviceability of weapons.

ix. Immediately seek medical assistance if needed and assistance in recovery of assets.

x. If One or more team members fail to respond to status check, visually check individual failing to respond, if only one team member responds direct that team member to physically check unresponsive member and provide first aid as needed, while one team member completes steps ii through ix. If no other team member responds, physically check closest team member first, and provide necessary first aid, check remaining team member and provide necessary first aid, complete steps ii through ix, as soon as possible.

E. The difference between life and death in a roll over is literally seconds. Soldiers need to be trained on what to do during a roll over and then practice until it becomes second nature. Leaders should not take it for granted that a soldier has been trained and knows what to do. Roll Over procedures should be practiced before the start of every mission involving vehicles. It is recommended that gunners wear their protective mask on the side under the arm instead of on the hip when in the turret in order to prevent the mask from being caught on the gunners strap when trying to get down into the vehicle.

5. Learning Step / Activity 5. Operate the winch on the M1114

Method of Instruction: Conference / Discussion

Instructor to Student Ratio: 1:12
Time of Instruction: 50 min
Media: Large Group Instruction
Note: Show Slide # 12 (Air Conditioner Location)

CAUTION: Never handle the winch cable with bare hands, always wear leather gloves. Never slide hands along cable, even when wearing gloves. Never allow personnel to stand in the immediate area when conducting winching operations

A. At some point in time either your vehicle or another vehicle will get stuck. When this happens you can either perform self-recovery or recovery of another vehicle of equal or lesser weight with the winch included on the M1114.

B. The winch on the M1114 is a rear mounted hydraulic winch. The older winch that you may be familiar with was an electrical winch that could be used without the engine running. The winch on the M1114 has been changed to a hydraulic winch that can only be operated when the engine is running, additionally, since the winch operates off the same hydraulic system used to operate the brakes and steering, if the brakes are applied or the steering wheel is turned during winching power will be lost to the winch system and the winch may stop during recovery operations. Procedures for winching are:

1. Park the M1114 directly in front of the object to be winched with the winch facing the object.
2. Place the transfer case selector lever in low lock
3. Apply the parking brake
4. Chock the wheels
5. Connect the remote control switch to the receptacle located inside of the vehicle.
6. Move both selector levers to free spool (Free spool is used to pay out cable. Vehicle does

not have to be running to free spool)

7. Grasp cable hook and pull out cable to the desired length. (Ensure at least 5 cable wraps are remaining on the drum).
8. Move the winch selector levers to Winch Locked Up Position. Never move the winch selector levers with a load on the winch or when the winch is in operation. This may cause damage to the winch
9. Direct all personnel to stand clear of the winch cable, at least two times the length of the cable spooled out.
10. Move the top winch selector lever to LOW, and the side winch selector lever to free. (Depending on the orientation of the winch this lever could be located to the rear of the winch)
11. Ensure the vehicle engine is running and the vehicle is properly chocked as indicated in steps a through h.
12. Using the remote control switch power in the cable and remove all slack. Laying something over the cable such as a blanket will reduce the snap back of the cable in the event it should break.
13. Check cable to ensure it is not caught on anything between the vehicles and that the cable hook is still secure.
14. While sitting inside of the vehicle with doors secured, windows and turret hatch closed Power in cable.
15. Observe recovery vehicle to ensure vehicle is not being drug, and that Chocks are secure and holding.
16. Observe vehicle being recovered to ensure it is being moved. If stuck vehicle does not move the vehicle is mired to deeply to be recovered, is high centered or exceeds the weight restrictions and an alternative recovery method must be used.
17. Once recovery procedures are completed or discontinued winch remaining cable back onto the spool.
18. During monthly PMCS, or if more than 50 % of the cable was spooled out during winching operations do the following
19. Set winch to Free spool and spool out cable leaving 5 wraps on the drum
20. Wind the winch cable back onto the drum under a load of at least 500 pounds, until the hook is about 1 foot from the fair lead rollers. This can also be done by using another vehicle, which is in neutral, on a flat, hard surface.
21. Disconnect the load and power in winch until the hook clevis touches the fair lead roller.

C. Self-Recovery:

1. Select an object such as a tree, to secure the cable to that is solid enough to withstand the pull forces, attempt to select an object that is in direct line with the winch in order to avoid a side pull. During a side pull the cable will stack on one side of the drum, and eventually the stack can be large enough to cause damage.
2. Place the strap provided with the vehicle around the tree and hook the cable to the strap. If sufficient cable is available, and the vehicle is severely stuck, attach the snatch block to the strap, and feed the cable through the snatch block back to the vehicle. If an object other than a tree is used secure the cable directly to the object.

D. Recovery of another vehicle:

1. Ensure the winch is in direct line with the vehicle to be recovered
2. Use the snatch block provided with the M1114 if possible, and secure the cable back to the recovery vehicle, if not, attach cable hook directly to vehicle being recovered.
3. Ensure that the vehicle being recovered does not exceed the weight of the M1114.
4. Check to ensure that the vehicle being recovered is not high centered, or is not too deeply mired. High centering or suction from deep mud increases the drag coefficient and may exceed the capabilities of the winch.

E. Winching operations are simple procedure until something goes wrong. Always follow all safety procedures and ensure no personnel are permitted between vehicles during winching. Even when the winch is not being operated, if there is a load on the cable no one should step between the vehicles. If a situation should arise that would require someone to enter the area between the vehicles ensure that winch is stopped, cable is spooled out to allow for some slack in the cable and relieve tension. At no time allow anyone to cross over or under the winch cable.

6. Learning Step / Activity 6. Operate the M1114

Method of Instruction: Conference / Discussion / Demonstration
Instructor to Student Ratio: 1:12
Time of Instruction: 240 min
Media: Large Group Instruction

NOTE: The requirements listed below are for unit License only. During introduction training the students will operate the M1114 on a large hardtop area, such as a parking lot or staging area. Students will drive the M1114 in a straight line at varying speeds determined by the instructor and conduct emergency stops, and then operate the vehicle in a figure 8 pattern around traffic cones in order to familiarize with the handling and stopping characteristics.

NOTE: Prior to students operating the M1114 the instructor will divide the students into 3 person teams and identify one student to act as the Team Leader. The teams will then conduct PMCS on the vehicles being used prior to the vehicles being operated.

A. During this block you will operate the M1114 in differing situations in order to evaluate your ability to safely operate and control the vehicle. The control test will consist of the following maneuvers and requirements and differing speeds:
    1. **Forward Stop**: Pull the vehicle forward through a straight alley, cones, or markings on the ground, and then stop the vehicle so that the front bumper is within 2 feet of the stop line.
    2. **Straight Line Backing**: Back the vehicle through a straight alley, cones or markings on the ground and then stop the vehicle so the rear bumper is within 2 feet of the stop line. If a ground guide is used: Back the vehicle following all instructions from the ground guide without breaking eye contact with the ground guide.
    3. **Right Turn**: Drive the vehicle forward 30-50 feet and then turn the vehicle right, around a cone or other point. Bring the rear of the vehicle within 6-12 inches of the cone without touching it.
    4. **Eight right turns and eight left turns**: Operate the vehicle through a series of cones that are set at varying distances requiring you to turn left and right eight times each at a different turning radius ranging from easy to difficult without striking any cones or losing control of the vehicle.
    5. **Panic stop**: While driving the vehicle the evaluator will command stop, at which time immediately apply the brake completely and stop the vehicle without losing control.
    6. **Turn around in a restricted area**: Pull the vehicle into an alley, cones, or marked location simulating a dead end with a restricted turning area. Turn the vehicle around so it is facing in the opposite direction from initial travel without violating the restrictions.
    7. **Drive forward through a restricted area**: Drive the vehicle through an area that narrows to within 6 inches of the mirror on each side of the vehicle without violating the limiting markers on either the left or right.
    8. **Drive backwards through a restricted area**: Drive the vehicle backwards through an area that narrows to within 6 inches of the mirror on each side of the vehicle without violating the limiting markers on either the left or right. If a ground guide is used: Back the vehicle following all instructions from the ground guide without breaking eye contact with the ground guide.

A. Soldiers that fail to successfully accomplish the tasks listed above should be returned to the unit master drivers training for remedial training and not permitted to proceed.
B. This block is intended to introduce the soldier to the different handling characteristics of the M1114, ensure they have the skills required to operate the vehicle safely and is used as a prelude to the vehicle road test.

SECTION IV. SUMMARY

Method of Instruction: Conference / Discussion
Instructor to Student Ratio is: 1:12
Time of Instruction: 15 mins
Media: Large Group Instruction

Check on Learning

a. Solicit student questions and explanations.

b. Correct student misunderstandings.

Review / Summarize Lesson

1. Now that you have received the introductory training you should be able to take this vehicle and perform whatever missions you have been performing in the M1025/1026 series HMMWV's without any degradation in capabilities.
2. Before you depart and integrate these vehicles into your unit there are a few things I would like to bring to you attention. Lessons Learned. There have been several incidents involving the M1114 that resulted in things ranging from minor damages to vehicles to loss of life. These things could have been avoided if the soldiers and leaders would have just remembered what they were taught, conducted an accurate risk assessment or practiced some common sense. Listed below are items found on a visit to a unit in Kosovo, by the Assistant Program Manager for the M1114 and investigations into vehicle problems reported.
    a. Additional vehicle communications equipment installation. Units were re-arranging the interior communications components to better assist crew personnel in performing their missions by fabricating brackets locally and attaching them to the interior of the vehicle. This results in the possibility of items coming loose in the event of a mine strike causing the items to become secondary projectiles, which could cause injury to the crew. Additionally drilling or welding on the armor can result in degradation of ballistic protection
    b. Serpentine belts: Unit maintenance personnel were not performing bracket and pulley adjustment procedures correctly, which was resulting in serpentine belts breaking or running off the pulleys, and causing mounting brackets to break and fail.
    c. Steering components/ frame rail cracks: Several vehicles were reported in Kosovo with this problem, 2 vehicles were located that had not been repaired. It was found that repairs of the cracks were not in accordance with proper welding procedures, and that the cracks and failures were a direct result of overloading the vehicles.
    d. Transmission problems: There were several transmission problems reported as transmission failures. It was found that the problems were not properly diagnosed and that transmissions had been removed and replaced when they could have been repaired with an

adjustment that required a Phillips screwdriver. Maintenance personnel were not following diagnostic and troubleshooting procedures as outlined in the TM

e. Tailpipe and tire chain interference: It was reported that the tail pie interfered with the tire chains when they were placed on the vehicles. It was pointed out that if the tail pipe were rotated to the rear of the vehicle at a 45-degree angle the pipe would be closer to the body and would not interfere. Additionally tire chains were not being properly installed according to procedures outlined in the TM.
f. Ball Joint Checks and Wheel alignment: Ball joints and wheel alignments were not being performed correctly; maintenance personnel were not following procedures outlined in the TM.
g. Steering components: Maintenance personnel complained of the difficulty of removing and working on some of the steering components. A check of procedures showed that they were not using the proper tools; there are special tools available that are designed for that specific task such as the pitman arm puller that the maintenance personnel failed to use.
h. Rust: A majority of the vehicles had areas that were rusting as a result of striking something and the CARC Paint and primer being scraped off and not being repaired.
i. Vehicle usage: vehicles were found to have high mileage, and maintenance intervals were not being followed, vehicles were being serviced by date not mileage. When vehicles are operated constantly they should be serviced as being used under extreme conditions in order to prevent breakage and extend the vehicle life.
j. Door striker bar damage: Several doors had the striker bars damaged. It was found that this occurs when the vehicle is operated without the doors being locked. When the locks are engaged the locks take the pressure of the door striker, doors should also be locked for blast protection.
k. Welding on the exterior of the vehicle: Units are welding a plate to the door by the handle that is used to secure the vehicle when not occupied. Welding on the Armor can reduce the ballistic properties of the Armor.
l. Welding the weapon pintle adaptor onto the vehicle: Units are welding the weapon pintle adaptor to the vehicle in order to leave it on the vehicle and prevent it from being taken. This does not affect the pintle, however it does raise the height of the vehicle to a point that it is not transportable on certain aircraft.
m. Sticker application and writing: Personnel are placing stickers on the inside of the windows and writing on the inside of the windows. The windows are coated with a soft liner, which is part of the ballistic protection. Placing stickers on or writing on the inside of the windows damages the liner reducing the ballistic protection.
n. Door Gap Strip Damage: Personnel are running a chain through the vehicle interior to either secure the door or chock block, and closing the doors on these chains. This results in damage to the door gap strips and hinges, can lead to door alignment problems, breakages, and ballistic integrity problems. The door gap strip is designed to prevent small arms fire from entering the vehicle and chains damage the strip providing an opening for rounds to penetrate the crew compartment.
o. Training: It was found that individuals were operating and working on the M1114 without receiving any training on the system. It is believed that it is just another HMMWV and no additional training is

required.

p. Vehicle accidents/incidents: There have been several vehicle accidents that were a result of differing causes and had different effects from vehicle damages to personnel injury.
    i. Mine Strike: A Special Forces Vehicle struck a mine and one individual was killed and another severely injured. The vehicle was operating on a road that was not cleared of mines and was not known to be used. The vehicle struck a land mine and the gunner (who was standing in the turret) was thrown from the vehicle, and the passenger in the right front seat who was not wearing a seat belt, nor had the door combat locked was thrown from the vehicle and the vehicle rolled over him.
    ii. Roll-over: There have been a couple of incidents where vehicles rolled: One resulted in the gunner being killed, when he did not get down into the vehicle in time, one resulted in a passenger being thrown from the vehicle because the door was not locked and he was not seat belted in. One resulted in a gunner being killed when a vehicle rolled and the gunner was trapped under the vehicle. It was obvious that the vehicle was going to roll however no one gave any notice and the gunner did not get into the vehicle. This may have been avoided if the unit had a roll over drill and practiced it. Several vehicles have gone off the road resulting in a roll over or damage. This was a result of the road giving way, and/or vehicles not being operated properly. Operators were driving on the very edge of the roadway where other vehicles had operated before, however, the operator or senior occupant did not take into consideration that the HMMWV he was in weighed over 12,000 pounds fully loaded. Some instances the operator was driving too fast for this vehicle and the centrifugal forces pulled the vehicle off the road in a curb and there have been vehicles that slid off the road because they were being operated on hard packed snow without tire chains.
    iii. One unit was deadlining vehicles because the vehicles were smoking too much and had alternator bracket bolts coming loose. It was found that the vehicles were being used on the gates and were being run constantly for heat. Since the vehicle was only being driven to refuel, it was not considered by the unit as “operation in under unusual conditions”, however operating the vehicle for several hours at idle results in sever engine vibration which causes nuts and bolts to loosen, additionally, if a diesel engine idles for long periods of time it results in carbon build up and causes the vehicle to smoke excessively, this is corrected by operating the vehicle under normal road drive conditions for a short period of time.

3. These are just a few of the incidents that we know about. As you can see from what we have gotten from lessons learned the majority of these things could be avoided with common sense, risk assessment and leader training. Soldiers need to be trained on the system both operators and mechanics, and the vehicle can not be considered as “just another HMMWV”, it’s not, and that’s why we had maintenance problems in Kosovo, the mechanics were using standard HMMWV maintenance procedures which do not apply to this vehicle. Soldiers are operating this HMMWV just like they did the

M1025/1026, and they can't.

4. Last but not least, is probably one of the biggest contributors to vehicle problems. Overloading the vehicle. The vehicle has a maximum weight of 12,100 pounds, which includes the vehicle, the soldiers all their equipment and anything else they want or need to carry. If you put a teams full compliment of equipment into an M1114, all required ammunition, and then add on concertina wire, spare tire, squad hex tent, extra cans of water and fuel, you are going to break something on the vehicle. You may not see it until after the accident investigation, to find out why the operator lost control, and find out that the rail frame broke from excessive weight that resulted in loss of steering. Bottom line was the vehicle was overloaded and it was operator error, which is a direct result of failure of the chain of command to exercise proper control over the soldiers.
5. Subject to your questions: This concludes the introduction to the M1114.

SECTION V. STUDENT EVALUATION

Testing Requirements

NOTE: Describe how the student must demonstrate accomplishment of the TLO. Refer student to the Student Evaluation Plan.

a. The student evaluation will be conducted using the examination included with this lesson.

b. Refer students to the Student Evaluation Plan.

Feedback Requirements

NOTE: Feedback is essential to effective learning. Schedule and provide feedback on the evaluation and any information to help answer students' questions about the test. Provide remedial training as needed.

a. Schedule and provide feedback on the evaluation and any information to help answer student questions about the test.

b. Provide remedial training as needed.

Appendix B Test(s) and Test Solution(s)

Written examination for the M1114 Up Armored High Mobility Multi-purpose Wheeled Vehicle (UAHMMWV)

Personnel taking this examination must be in possession of a valid license for the M1026/1026 HMMWV. This examination is to evaluate the examinees knowledge for the transition into the M1114 from the M1025/1026. For personnel that have not previously been licensed on the M1025/1026, they must go through the training requirements as outlined in AR 600-55.
In order to proceed to the Road Test portion of the M1114 evaluation, and receive a license you must achieve a score of at least 70 percent on this written examination.

The examination consists of 30 questions, broken into 2 sections True or False or multiple choice, in order to pass this examination you can miss no more than 9 questions.

This examination is to be taken without the benefits of notes or reference materials or assistance of any kind.

NAME: _____ RANK: _____ DATE: _____

UNIT/PLATOON: _____

Section 1. True or False questions: Read each question carefully and circle T or F.

1. The Transfer case shift lever should be in “H/L” when driving in snow or on ice. T F
2. When operating off road the driver should ride the brake to ensure vehicle speed is slow enough for safe operation. T F
3. With the air intake added to the M1114, the vehicle can be submerged in 36 inches of water, but no longer than 5 minutes. T F
4. The M1114 will withstand a 12-pound anti tank mine under any tire. T F
5. The air conditioner in the M1114 should only be used when the outside temperature is above 75 degrees. T F
6. In the event of insufficient hydraulic pressure from the steering pump the accumulator has sufficient stored charge for an emergency stop. T F
7. After shutting off the engine on the M1114 the driver should put the vehicle in N and set the emergency brake before exiting the vehicle. T F
8. The weight of the M1114 is not so different from other HMMWV models that it will affect the operation of the vehicle. T F

Section II Multiple Choice: read each question carefully and circle the answer, which is most correct according to the training you have recently received.

9. The UAHMMWV maximum weight with payload can not exceed:
    a. 9,800 pounds
    b. 11,200 pounds
    c. 12,100 pounds
    d. 13,500 pounds
10. When cleaning the M1114, the inside of the windows must be cleaned with:
    a. Mild abrasive and clean lint free cloth
    b. Mild detergent, warm water, and a soft clean cloth
    c. Warm water, general purpose cleaner and paper towels
    d. Simple Green and alcohol mix and clean washcloth
11. The windows in the M1114 should remain closed because:
    a. It lets the cool air from the air conditioner out.

b. It lets the hot air in and makes the A.C. work harder
c. It decreases the wear on the lift mechanism
d. It negates the ballistic protection when open

12. The M1114 is a rear mounted winch and is capable of recovering:
    a. Vehicles of same size and shape
    b. Vehicles of equivalent weight
    c. Vehicles that weigh no more than 1500 pounds more
    d. The M1114 can only recover itself or other M1114s
13. The doors on the M1114 should be closed anytime the vehicle is moving because
    a. The door can slam shut on someone and injure them
    b. The door can swing open and spring the hinges
    c. The door could swing forward and break the strap
    d. All of the above
14. One of the signs that the windshield de-icer is being left on too long or being used when it should not be is.
    a. Chips or cracks on the outside of the windows
    b. Window appears to be foggy and fog can not be removed
    c. Mud sticks to the window
    d. Vehicle batteries never charge to full
15. The Vehicle Intercom system allows the crew to.
    a. Communicate with crowds outside the vehicle without the aid of a bullhorn
    b. Talk to each other without anyone else listening in
    c. Monitor the radio and converse with each other over a headset through a series of control boxes
    d. Monitor the radio and over ride transmissions from external sources
16. The accumulator on the brake system.
    a. Accumulates the hydraulic fluid in one central location for use when needed
    b. Is the built in safety in the event of insufficient hydraulic pressure
    c. Reroutes hydraulic fluid for the winch
    d. All of the above
17. The transfer case shift lever.
    a. Has only four modes of operation
    b. Consists of High, High Lock, Overdrive, and Low
    c. Can be shifted from High to High Lock while moving
    d. None of the above
18. Maximum speed for 2nd (Second) gear with the T Case is in H is.
    a. 30 MPH
    b. 40 MPH
    c. 50 MPH
    d. 55MPH
19. When conducting winching operations the operator should never move the winch selector levers with a load on the winch or when the winch is in operation because.
    a. The cable could snap
    b. The cable will be loose on the drum and need to be re-wrapped
    c. It may cause damage to the winch
    d. It would cause the vehicle being winched to get re-stuck
20. The main purpose of the C-Pillar door is to.
    a. Provide access to the ammunition stored in the back
    b. Provide ballistic protection to the crew compartment
    c. Allow emergency entry and egress for the vehicle
    d. Allow access to the C-pillar
21. When adding items permanently to the exterior of the M1114.
    a. Contact the material developer and get approval first
    b. Ensure items are welded solidly
    c. Drill holes and Bolt items on only
    d. It doesn't matter since it's your vehicle

22. Upon hearing the command rollover the gunner
    a. Jumps clear of the vehicle
    b. Immediately drops down inside the vehicle
    c. Disconnects the MK 19 and pulls it into the vehicle
    d. Grabs the handles of the MK 19 and pushes back against the turret
23. Upon hearing the command “Bail Out” the driver
    a. Immediately evacuates the vehicle
    b. Pulls the vehicle into the closest cover and concealment
    c. Secures his weapon and personal gear
    d. Immediately stops the vehicle
24. In order to gain entry in a secured M1114 you
    a. Break a window
    b. Remove the Bolts holding the door locks
    c. Break off the hinges on the front of one of the doors
    d. You must cut through the gunners hatch
25. When approaching a sharp curve in an M1114
    a. Take the curve at the same speed as in a M1025/1026
    b. Take the curve slower than you would in a M1025/1026 because the M1114 weighs more
    c. Brake before the curve and accelerate while in the curve so the front tires pull the vehicle through the curve
    d. Pull as far to the inside of the curve as possible to allow for vehicle drift
26. Why shouldn’t things be added to the interior of the M1114 without contacting the material developer first?
    a. The material developer wants to make sure that MP’s are only adding items that are authorized on the units TOE.
    b. The Material Developer conducted a ballistic study of how items will react in a mine blast and modifications could need to be evaluated also
    c. The material developer wants total control over what happens with the vehicle
    d. All vehicle load plans are required to be placed in Department of the Army Load planning database by the material developer for reference
27. When operating cross country
    a. The gunner should ride inside the vehicle if possible
    b. The driver should select Cross Country on the CTIS Setting
    c. The team leader should walk in front of the vehicle
    d. All personnel should remove the CVC and put on their Kevlar
28. To eliminate Drive Line Wind up the operator should
    a. Turn off the vehicle and wait 15 minutes and restart the vehicle
    b. Turn off the vehicle and notify maintenance personnel
    c. Place the Transmission in Overdrive and the transfer case in High and accelerate forward as fast as possible for 10 feet
    d. Place the vehicle in reverse and back up for 10 feet
29. The transfer case may get stuck in neutral this is usually caused by
    a. A bad transfer case
    b. Operator failed to make a smooth shift
    c. Transmission is in Lock up
    d. Rear differential bearing needs replaced
30. Why is it important to inspect the armor on the M1114 during PMCS?
    a. To ensure you as the operator do not get blamed for damages you did not do
    b. To ensure that the CARC paint is not peeling
    c. To ensure that soldiers spend enough time conducting PMCS
    d. To identify any damages that may have an impact on the ballistic integrity of the vehicle.

ANSWER KEY

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5. The air conditioner in the M1114 should only be used when the outside temperature is above 75 degrees. T **F**
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7. After shutting off the engine on the M1114 the driver should put the vehicle in N and set the emergency brake before exiting the vehicle. T **F**
8. The weight of the M1114 is not so different from other HMMWV models that it will affect the operation of the vehicle. T **F**

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    c. To ensure that soldiers spend enough time conducting PMCS
    d. <u>To identify any damages that may have an impact on the ballistic integrity of the vehicle.</u>

PRACTICAL EXERCISE SHEET 1

Title

M1114 Up Armored High Mobility multi Wheeled Vehicle

Lesson Number/Title

Introduction

During this Practical Exercise, you will be required to properly conduct PMCS on the M1114 and annotate deficiencies noted.

Motivator

Now that you have been shown how to PMCS and operate the M1114, you are going to put that knowledge to use. Remember, the main objective of this Practical Exercise is to reinforce what you have learned.

Terminal Learning Objective

NOTE: The instructor should inform the students of the following Terminal Learning Objective covered by this practical exercise.

At the completion of this lesson, you [the student] will:

Action:	Conduct Preventive Maintenance Checks and Services on the M1114 Up Armored HMMWV
Conditions:	At a training site, given an M1114, TM 9-2320-387-10,
Standards:	Perform before and after operations PMCS on the M1114 IAW instruction received and TM 9-2320-287-10

Safety Requirements

At no time will students operate the M1114 without an instructor present.

Risk Assessment Level

Low

Environmental Considerations

None

Evaluation

Instructional Lead-In

None

Resource Requirements

Instructor Materials:
Practical Exercise

Student Materials:
All listed equipment

Special Instructions

1. Instructor will divide individuals into groups of 3 personnel to conduct PMCS.
2. Instructor will identify one individual to act as the Team Leader during the practical exercise.
3. An instructor will be present at each vehicle during PMCS in order to ensure equipment is not damaged.

Feedback

a. Schedule and provide feedback on the practical exercise and exam to help

Requirements

answer student questions about the practical exercise and exam.

b. Provide remedial training as needed.

Appendix D Student Handouts

This Lesson plan will be handed out to all students.
NOTE: Ensure that the written examination and answer key are removed prior to handing out to students.